

1. A mechanical drive system for an accessory gearbox of a gas turbine engine, which engine has a high-pressure drive shaft and a low-pressure drive shaft, the drive system comprising:

a first tower shaft connected by a first gear arrangement to the high-pressure drive shaft;

a second tower shaft connected by a second gear arrangement to the low-pressure drive shaft;

a first lay shaft connected by a third gear arrangement to the first tower shaft, and connected to the accessory gearbox; and

a second lay shaft connected by a fourth gear arrangement to the second tower shaft, and connected to the accessory gearbox.

2. The mechanical drive system of claim 1, wherein the first tower shaft is concentric with the second tower shaft.

3. The mechanical drive system of claim 2, wherein the first lay shaft is concentric with the second lay shaft.

4. The mechanical drive system of claim 3, wherein the third gear arrangement includes a first bevel gear attached to the first tower shaft, and a second bevel gear attached to the first lay shaft, wherein the first bevel gear and the second bevel gear are engaged with one another.

5. The mechanical drive system of claim 4, wherein the fourth gear arrangement includes a third bevel gear attached to the second tower shaft, and a fourth bevel gear attached to the second lay shaft, wherein the third bevel gear and the fourth bevel gear are engaged with one another.

6. The mechanical drive system of claim 2, wherein the first lay shaft is disposed spaced apart from and parallel to the second lay shaft.

7. The mechanical drive system of claim 6, wherein the third gear arrangement includes a first bevel gear attached to the first tower shaft, and a second bevel gear attached to the first lay shaft, wherein the first bevel gear and the second bevel gear are engaged with one another.

8. The mechanical drive system of claim 7, wherein the fourth gear arrangement includes a first spur gear, a second spur gear, an intermediate shaft, a first bevel gear, and a second bevel gear, wherein the first spur gear is attached to the second tower shaft, and the second spur gear and the first bevel gear are attached to the intermediate shaft, and the second bevel gear is attached to the second lay shaft;

wherein the first spur gear and the second spur gear are engaged with one another; and

wherein the first bevel gear and the second bevel gear are engaged with one another.

9. A mechanical drive system for an accessory gearbox of a gas turbine engine, which engine has a high-pressure drive shaft and a low-pressure drive shaft, the drive system comprising:

a first tower shaft driven by the high-pressure drive shaft;

a second tower shaft driven by the low-pressure drive shaft;

a first lay shaft driven by the first tower shaft, and connected to the accessory gearbox; and

a second lay shaft driven by the second tower shaft, and connected to the accessory gearbox.

10. The mechanical drive system of claim 9, wherein the first tower shaft is concentric with the second tower shaft.

11. The mechanical drive system of claim 10, wherein the first lay shaft is concentric with the second lay shaft.

12. The mechanical drive system of claim 11, wherein a first gear arrangement connects the first tower shaft to the first lay shaft, and the first gear arrangement includes a first bevel gear attached to the first tower shaft, and a second bevel gear attached to the first lay shaft, wherein the first bevel gear and the second bevel gear are engaged with one another.

13. The mechanical drive system of claim 12, wherein a second gear arrangement includes a third bevel gear attached to the second tower shaft, and a fourth bevel gear attached to the second lay shaft, wherein the third bevel gear and the fourth bevel gear are engaged with one another.

14. The mechanical drive system of claim 9, wherein the first lay shaft is disposed spaced apart from and parallel to the second lay shaft.

15. The mechanical drive system of claim 6, wherein a first gear arrangement connects the first tower shaft to the first lay shaft, the first gear arrangement including a first bevel gear attached to the first tower shaft, and a second bevel gear attached to the first lay shaft, wherein the first bevel gear and the second bevel gear are engaged with one another.

16. The mechanical drive system of claim 15, wherein a second gear arrangement connects the second tower shaft to the second lay shaft, the second gear arrangement including a first spur gear, a second spur gear, an intermediate shaft, a first bevel gear, and a second bevel gear, wherein the first spur gear is attached to the second tower shaft, and the second spur gear and the first bevel gear are attached to the intermediate shaft, and the second bevel gear is attached to the second lay shaft;

wherein the first spur gear and the second spur gear are engaged with one another; and

wherein the first bevel gear and the second bevel gear are engaged with one another.

17. A gas turbine engine, comprising:

a high-pressure drive shaft connected to a high-pressure compressor and a high-pressure turbine;

a low-pressure drive shaft connected to a low-pressure compressor and a low-pressure turbine;

wherein the high-pressure drive shaft and the low-pressure drive shaft rotate about an axially extending engine centerline;

an accessory gear box;

a first tower shaft driven by the high-pressure drive shaft, and connected to the accessory gearbox by a first lay shaft; and

a second tower shaft driven by the low-pressure drive shaft, and connected to the accessory gearbox by a second lay shaft.

18. The gas turbine engine of claim 17, wherein the first tower shaft is concentric with the second tower shaft.

19. The gas turbine engine of claim 18, wherein the first lay shaft is concentric with the second lay shaft.

20. The gas turbine engine of claim 18, wherein the first lay shaft is disposed spaced apart from and parallel to the second lay shaft.